

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
10 February 2005 (10.02.2005)

PCT

(10) International Publication Number
WO 2005/013308 A1

(51) International Patent Classification⁷: **H01J 9/24**, 17/16, 17/49, B29C 33/38

(21) International Application Number: PCT/US2004/023472

(22) International Filing Date: 21 July 2004 (21.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 2003-204636 31 July 2003 (31.07.2003) JP

(71) Applicant (*for all designated States except US*): **3M INNOVATIVE PROPERTIES COMPANY [US/US]**; 3M Center, P.O. Box 33427, Saint Paul, MN 55133-3427 (US).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **SUGIMOTO, Takaki, [JP/JP]**; Sumitomo 3M Limited, 8-8 Minami Hashimoto 3-chome, Sagamihara, Kanagawa 229-1185

(JP). WILLIAMS, Todd, R. [US/US]; 3M Center, P.O. Box 33427, Saint Paul, MN 55133-3427 (US). MCGUIRE, Padraic, S. [US/US]; 3M Center, P.O. Box 33427, Saint Paul, MN 55133-3427 (US).

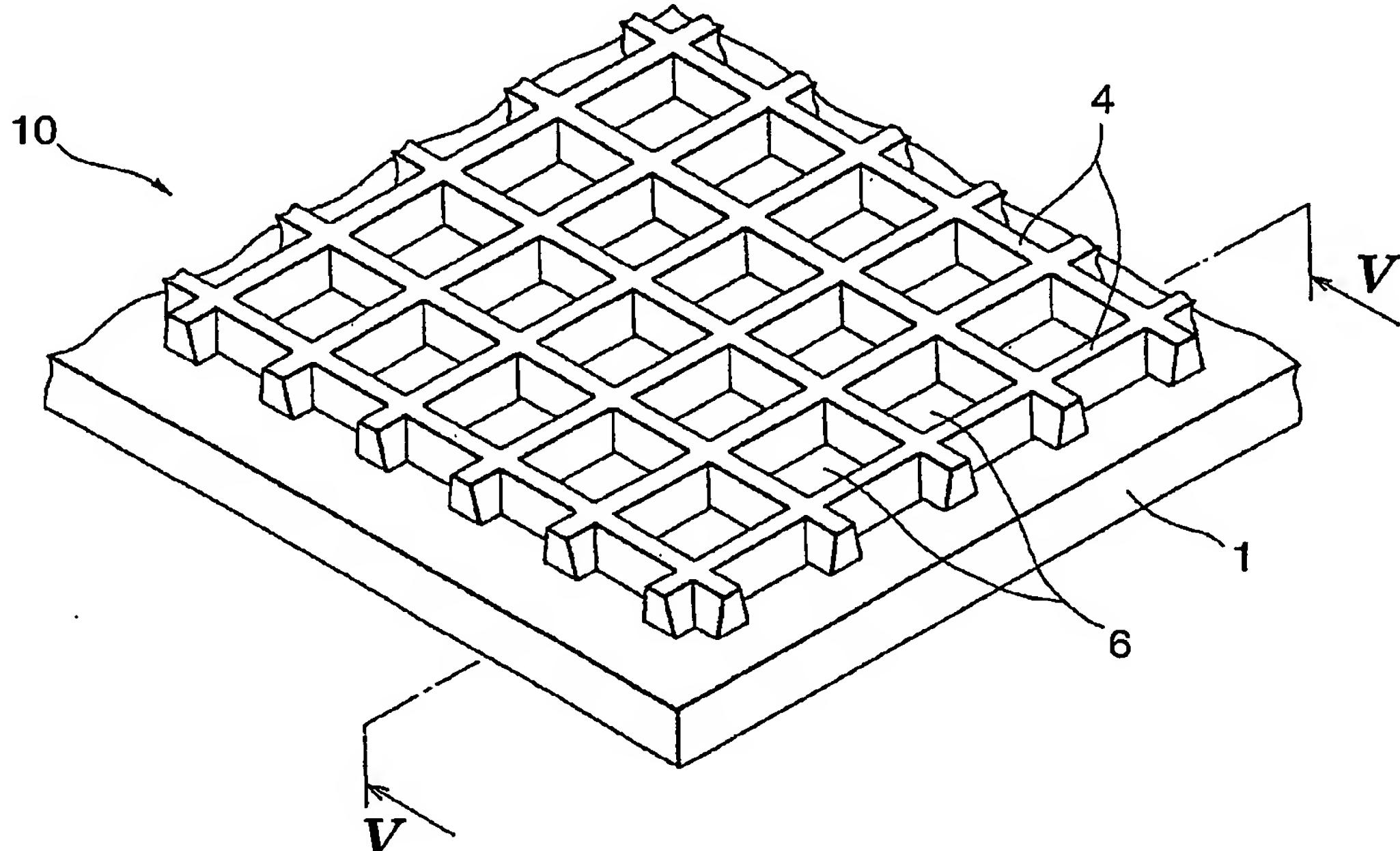
(74) Agents: **FISCHER, Carolyn, A. et al.**; Office of Intellectual Property Counsel, P.O. Box 33427, Saint Paul, MN 55133-3427 (US).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

[Continued on next page]

(54) Title: MASTER MOLD FOR DUPLICATING FINE STRUCTURE AND PRODUCTION METHOD THEREOF



WO 2005/013308 A1

(57) Abstract: A method and master mold (10) comprising a metal support layer (1) and a fine structure pattern (4) comprised of a glass or ceramic material, wherein the pattern support layer is formed of a first material having a relatively low grinding speed, and the fine structure pattern is formed of a layer of a second material having a grinding speed higher than that of the material of the pattern support layer.



European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

- *with international search report*